

Rodney J. Klinger et al. Ser. No.10/074,196

G.A.U. 2836

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A motor vehicle comprising:

an engine whose operation is under control of an engine control system that performs an idle shutdown function to shut down the engine via a programmable output of an electronic module of the control system after the engine has been running in idle without interruption for an some amount of time programmed in the module as measured from the commencement of running in idle;

an ignition switch that can be operated on and off for signaling the engine control system via a feed from the ignition switch to an ignition input of the module to turn the engine on and off;

load circuits that are fed through the ignition switch when the ignition switch is on;

and an interface that is connected between the ignition switch and the load circuits and to the programmable output of the module for controlling feeding of the load circuits from the ignition switch by allowing the feeding when the ignition switch is on and the programmable output of the module is not signaling an idle shutdown and by disallowing the feeding when the programmable output of the module is signaling an idle shutdown, wherein the interface excludes the feed from the ignition switch to the ignition input of the module.

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2. (original) A motor vehicle as set forth in Claim 1 in which the interface comprises one or more relays.

3. (original) A motor vehicle as set forth in Claim 2 in which the ignition switch comprises an ignition terminal and an accessory terminal, one relay interfaces the ignition terminal with some of the load circuits, and another relay interfaces the accessory terminal with other load circuits.

4. (original) A motor vehicle as set forth in Claim 3 in which both relays are energized when allowing the feeding and de-energized when disallowing the feeding.

5. (original) A motor vehicle as set forth in Claim 4 in which each relay comprises a coil having a terminal connected to the programmable output of the module.

6. (Currently amended) A method for preventing battery drain caused by an ignition switch through which load circuits are fed remaining on after an engine that has been idling continuously in a motor vehicle for an some amount of time, as measured from the commencement of running in idle, has been automatically shutdown by an idle shutdown timing function performed by an engine control system, the method comprising:

programming a programmable output of a module of the engine control system to deliver an idle shutdown signal upon the idle shutdown timing function having measured the amount of time and thereupon signaling an idle shutdown;

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connecting an interface between the ignition switch and the load circuits and to the programmable output of the module to control feeding of the load circuits from the ignition switch by allowing the feeding when the ignition switch is on and the programmable output of the module is not signaling an idle shutdown and by disallowing the feeding upon the programmable output signaling an idle shutdown, wherein the step of connecting an interface excludes any connection that would interrupt a feed from the ignition switch to an ignition input of the module via which the ignition switch signals the engine control system to turn the ignition on and off.

7. (original) A method as set forth in Claim 6 in which the step of connecting an interface between the ignition switch and the load circuits and to the programmable output of the module interface comprises connecting one or more relays between the ignition switch and the load circuits and to the programmable output of the module.

8. (original) A method as set forth in Claim 7 in which the step of connecting one or more relays between the ignition switch and the load circuits and to the programmable output of the module comprises connecting a contact of one relay between some of the load circuits and an ignition terminal of the ignition switch and connecting a contact of another relay between other load circuits and an accessory terminal of the ignition switch.

9. (original) A method as set forth in Claim 8 including the steps of energizing coils of both relays to

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allow the feeding and de-energizing the coils to disallow the feeding.

10. (original) A method as set forth in Claim 9 including the step of connecting a terminal of each coil to the programmable output of the module.